

## CLAIMS

What is claimed is:

1. A wellhead assembly system for assembling a tubing head onto a floating vessel and for testing the integrity of a riser string disposed between a floating vessel and a subsea wellhead,  
5 the assembly system comprising:
  - a) a tubing hanger to be landed upon a stem of a floating vessel, the tubing hanger comprising a housing having a generally vertically-disposed bore therethrough and a landing profile for selectively engaging a stem of a floating vessel;
  - b) a running and setting tool comprising:
    - 10 a central piston assembly radially disposed within the bore of the tubing head and being axially moveable therewithin,
      - a landing sub affixed to a lower end of the central piston assembly and being selectively securable to a casing section member;
      - 15 a fluid bore disposed through the central piston assembly and landing sub; and
      - a matching profile upon the central piston assembly for reversably interconnecting the central piston assembly with the tubing head housing.
2. The wellhead assembly system of claim 1 further comprising a tubular casing sleeve secured to a lower end of the tubing hanger and sized to retain a casing string member radially within, and a securing assembly for securing an end of a casing string member radially within the  
20 casing sleeve.
3. The wellhead assembly system of claim 2 wherein the securing assembly further comprises a ratchet suspension assembly having a plurality of radially interior teeth to interengage a radial exterior of a casing string member.

4. The wellhead assembly system of claim 1 further comprising a fluid chamber formed between the tubing hanger and the central piston assembly that can be selectively filled to move the piston assembly axially with respect to the tubing hanger.

5. The wellhead assembly system of claim 1 wherein the tubing hanger further includes a load cell for measuring tension upon a riser string extending between the tubing hanger and a subsea wellhead.

6. The wellhead assembly system of claim 1 further comprising means for selectively securing the central piston assembly within the tubing hanger to preclude axial movement between the central piston assembly and the tubing hanger.

10 7. The wellhead assembly system of claim 6 wherein the means for selectively securing comprises a set screw.

8. A running and setting tool for landing portions of a wellhead upon the stem of a floating platform, the tool comprising:

15 a central piston assembly radially disposed within a bore of a tubing head to be axially moveable therewithin,

a landing sub affixed to a lower end of the central piston assembly and being selectively securable to a casing section member;

a fluid bore disposed through the central piston assembly and landing sub; and

20 a profile upon the central piston assembly for reversably interconnecting the central piston assembly with a tubing head.

9. The running and setting tool of claim 8 wherein the landing sub further comprises a seal assembly for selectively creating a fluid seal within a surrounding sleeve.

10. The running and setting tool of claim 8 further comprising means for selectively securing the central piston assembly within a tubing head to preclude axial movement between the central piston assembly and the tubing head.

11. The running and setting tool of claim 10 wherein the means for selectively securing  
5 comprises a set screw.

12. A method of assembling a tubing head onto a floating vessel and testing the integrity of a riser string disposed between a floating vessel and a subsea wellhead, comprising the steps of:

reversibly securing an upper portion of a central piston assembly to a tubing head;

reversibly affixing a landing sub on a lower portion of a central piston assembly to a

10 casing member in a casing string;

pressure testing the casing string;

landing the tubing head onto the stem of a floating platform; and

energizing a riser seal between the landing sub and a surrounding sleeve.

13. The method of claim 12 further comprising the step of pressure testing the riser seal.

15 14. The method of claim 12 wherein the step of energizing the riser seal comprises axially moving the central piston assembly with respect to the tubing head assembly.

15. The method of claim 14 wherein the step of axially moving the central piston assembly with respect to the tubing head assembly further comprises the step of pressurizing a fluid chamber.

20 16. The method of claim 12 further comprising the step of tensioning the casing string.

17. The method of claim 16 further comprising the step of measuring the tension load upon the casing string via a load cell within the tubing head.

18. The method of claim 12 further comprising the step of landing a blowout preventer atop the tubing head.